RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

DIVISION : RESEARCH

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OBJECTIVE
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To compare the response of different instrumentation used in the determination of sidestream smoke particulate matter
a) considering the absolute values
b) considering the pattern obtained during aging of smoke.

RESULTS
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It was observed [1] that the absolute values obtained for particulate matter were much higher using a TEOM than the gravimetric measurement. Therefore, the results obtained with filters of different pore size and nature were compared. Filters investigated were a fluoropore filter (Millipore) having a pore size of 1 um and two teflon filters (Pallflex) T60A20 and TX40. While the exact pore sizes of the teflon filters are unknown, pore size of TX40 is smaller than the one of T60A20.
During the experiments the TEOM was run with the same kind of filter as the gravimetric measurement, except when using the filter from Millipore, which was only available for the gravimetric measurement. In that case the T60A20 filter was used for the TEOM.

Comparing the values obtained from gravimetric measurement, it was shown that all three filters gave about the same results when using the same smoking and sampling conditions. The same was true for the TEOM values; however, the TEOM values were about 30% higher than the corresponding values obtained from gravimetric measurement.
Even when adjusting the flow rates of the TEOM and gravimetric measurement in such a way that both should have the same filter efficiency, this discrepancy could not be eliminated. Therefore, the calibration of the TEOM will be checked.

A final report covering all experimental results will be finished beginning of March.

REFERENCE
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[1] Pestlin-S., Quarterly Report, July-September 1988, pp. 23-24.

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